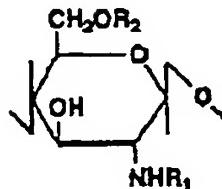


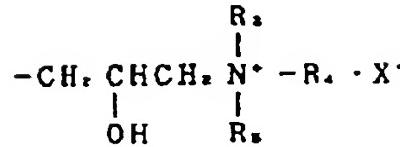
# EUROPEAN PATENT OFFICE

**Patent Abstracts of Japan**

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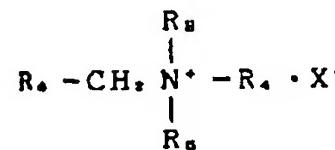


APPLICANT : KOKEN CO LTD;

I

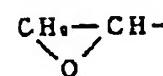
INVENTOR : IGARASHI OSAMU;

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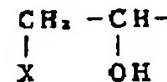


II

TITLE : PRESERVATIVE FOR COSMETIC,  
 CONTAINING CATIONIC CHITOSAN  
 DERIVATIVE



III



IV

ABSTRACT : PURPOSE: To provide a preservative for cosmetic, excellent in the safety, having a wide antimicrobial spectrum and capable of exhibiting a vider and stronger activity by using another preservative in combination.

CONSTITUTION: This preservative for cosmetic contains a cationic chitosan derivative composed of a repeating unit of formula I [R<sub>1</sub> is formula II (R<sub>3</sub> to R<sub>5</sub> are each an alkyl or an aralkyl; X is a halogen), H or acetyl; R<sub>2</sub> is formula II or H]. This cationic chitosan derivative can be synthesized by partly substituting chitosan using a quaternary ammonium halide of formula III (R<sub>3</sub> to R<sub>5</sub> are each an alkyl or an aralkyl; R<sub>6</sub> is formula IV or formula V). The degree (number of the group of formula II per the repeating unit) of substitution with the quaternary ammonium group of formula II can be controlled by the amount of added compound of formula III and the preferable range is 0.7 to 1.5. The mixture ratio of this Preservative to a cosmetic is 0.01 to 10wt.%, preferably 0.1 to 1wt.%. As the preservative which can be used in combination with this preservative, a phenolic compound and/or its derivative, especially para-oxybenzoic acid ester and/or phenoxyethanol are preferable.

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